

## SAFE LIQUID SOURCE CONTAINERS

### Abstract of the Disclosure

Containers for providing vapor phase reactant from liquid sources include bubbler designs and designs in which carrier gas flows over the liquid surface. Among the bubbler arrangements, a bypass conductance is provided to release excess pressure from the gas volume inside the container, or an enlarged bubbler tube is provided with a volume sufficient to accommodate all possible liquid backflow without having the liquid exit the container. Among the overflow designs, flow dividers provide a tortuous path for the gas to increase the time exposure of carrier gas packets to the evaporating liquid surface. The flow dividers can be microporous to encourage capillary action, thereby increasing the evaporating surface. The tortuous gas flow path can be separated from the liquid phase by a breathable semi-porous membrane that permits vapor phase reactant to pass through but prohibits liquid from passing in the other direction.

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